

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

WILLIAM JONES, ET AL	)	DATE:	August 21, 2009
	)		
APPLICATION NO.: 10/582,593	)		
	)	GROUP ART UNIT:	1793
FILED: March 19, 2007	)		
	)	CONFIRMATION NO.:	2189
Oxidic Catalyst Composition Comprising	)		
A Divalent, A Trivalent, And A Rare	)		
Earth Metal	)	EXAMINER:	Brian D. Walck

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sir:

**BRIEF ON APPEAL**

**CERTIFICATE OF SUBMISSION**

I hereby certify that, in the course of ordinary business, this paper (along with any that may be referred to as being attached or otherwise included with this submission) is being submitted on the date indicated below to the United States Patent and Trademark Office via EFS-Web.

08-21-2009

Date

  
CYNTHIA M. FARR

## TABLE OF CONTENTS

<i>Section</i>	<i>Page</i>
Real Party in Interest.....	1
Related Appeals and Interferences.....	2
Status of Claims.....	3
Status of Amendments.....	4
Summary of Claimed Subject Matter.....	5
Grounds of Rejection to Be Reviewed on Appeal.....	6
Argument.....	7
I. Construction Election under MPEP 821.03 and 37 C.F.R. 1.142.....	7
II. Obviousness under 35 U.S.C. 103(a).....	8
A. Rejection of Claims 1 - 3 under 35 U.S.C. 103(a) as being obvious over United States Patent Number 4,975,406, Frestad, et al (" <i>Frestad</i> ") .....	8
B. Rejection of Claims 1 - 3 and 6 under 35 U.S.C. 103(a) as being obvious over United States Patent Number 4,921,824, Chin, et al. (" <i>Chin</i> ")....	10
C. Rejection of Claims 4 - 5 under 35 U.S.C. 103(a) as being obvious over United States Patent Number 4,921,824, Chin, et al. (" <i>Chin</i> ") in view of European Patent Application EP 0554968 (" <i>Kim</i> ").....	10
D. Rejection of Claims 1 - 6 under 35 U.S.C. 103(a) as being obvious over European Patent Application EP 0554968 (" <i>Kim</i> ") in view of United States Patent Number 4,921,824, Chin, et al. (" <i>Chin</i> ")......	11
Relief Requested.....	13
Claims Appendix.....	A1
Evidence Appendix.....	A2
Related Proceedings Appendix.....	A3

**REAL PARTY IN INTEREST**

The real party in interest for this appeal is Albemarle Netherlands B.V., an entity duly organized and existing under the laws of The Netherlands, having a place of business at Nieuwendammerkade 1-3, NL-1022 AB Amsterdam, The Netherlands.

**RELATED APPEALS AND INTERFERENCES**

There are presently no appeals or interferences, known to Appellants, Appellants' representatives or the Assignee, which may be related to, directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

**STATUS OF CLAIMS**

Claims 1 to 8 are pending in this appeal. Claims 1 to 6 have been rejected and Claims 7 to 8 have been withdrawn. All pending Claims 1 to 8 are being appealed. The pending Claims are reproduced in the Claims Appendix attached hereto.

**STATUS OF AMENDMENTS**

No amendments were filed subsequent to the final rejection and the Examiner has entered the Claims listed in the appendix.

**SUMMARY OF CLAIMED SUBJECT MATTER**

This invention relates to an oxidic catalyst composition comprising as divalent metal, trivalent metal, and a rare earth metal. This invention also relates to a process for preparing the composition and utilizing it for catalytic applications. Specification, Page 1, Lines 4 to 9. One advantage of the present invention is that it has higher metal trap capacity than the prior art. Specification, Page 1, Lines 27 to 28. Oil feedstock typically contains metals, such as nickel and vanadium, which fouls catalysts and the present oxidic catalyst is especially suitable for trapping these metals. Specification, Page 7, Lines 5 to 6.

Claim 1 is only independent claim pending in this Application. Claim 1 relates to oxidic catalyst composition comprising 5-60 wt.% of a divalent metal, 5-60 wt.% of a trivalent metal and 40-55 wt% of a rare earth metal, calculated as oxide and based on the total weight of the oxidic catalyst composition. Specification, Page 1, Lines 23 to 26. Preferred ranges for the rare earth metal concentration, such as 40–55 wt%, is found in the Specification on Page 2, Lines 10 to 12.

Process Claim 4, which is dependent on Claim 1, is directed to a process for preparing the composition of Claim 1, which involves forming a precipitate from a solution containing dissolved divalent, trivalent, and rare earth metal salts, followed by calcination of the precipitate obtained. Specification, Page 3, Lines 13 to 17.

Process Claim 5, which is an alternative process, involves the calcination of a physical mixture of a divalent, a trivalent, and a rare earth metal source. Specification, Page 4, Lines 4 to 5. It only involves calcinations and mixing and does not require a precipitation step or water-soluble salts. Specification, Page 4, Lines 6 to 8.

Catalyst particle Claim 6, relates to a catalyst particle comprising the oxidic catalyst composition of Claim 1, with a matrix or filler material and a molecular sieve. Specification, Page 7, Line 8 to 12.

Claims 7 and 8 are methods of utilizing the oxidic catalyst composition of Claim 1 in a FCC process. Specification, Page 7, Lines 5 to 6 and 14 to 16.

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Construction Election under MPEP 821.03 and 37 C.F.R. 1.142

Claims 7 - 8 are withdrawn from consideration constructively under MPEP 821.03 and 37 C.F.R. 1.142(b).

Obviousness under 35 U.S.C. 103(a)

Claims 1 - 3 have been rejected under 35 U.S.C. 103(a) as being obvious over United States Patent Number 4,975,406, Frestad, et al ("*Frestad*").

Claims 1 - 3 and Claim 6 has been rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Number 4,921,824, Chin, et al ("*Chin*").

Claims 4 and 5 have been rejected under 35 U.S.C. 103(a) as being unpatentable over *Chin* in view of European Patent Application EP 0554968 ("*Kim*").

Claims 1 - 6 have been rejected under 35 U.S.C. 103(a) as being unpatentable over *Kim* in view of *Chin*.

## **ARGUMENT**

### **I. Construction Election under MPEP 821.03 and 37 C.F.R. 1.142.**

The Examiner has taken the position that Claims 7 - 8 are withdrawn from consideration constructively under MPEP 821.03 and 37 C.F.R. 1.142(b). Applicants respectfully appeal this construction election as being improper.

MPEP 821.03 reads as follows:

***821.03 Claims for Different Invention Added After an Office Action [R-3]***

*Claims added by amendment following action by the examiner, MPEP § 818.01, § 818.02(a), to an invention other than previously claimed, should be treated as indicated by 37 CFR 1.145.*

***37 CFR 1.145 Subsequent presentation of claims for different invention.***

*If, after an office action on an application, the applicant presents claims directed to an invention distinct from and independent of the invention previously claimed, the applicant will be required to restrict the claims to the invention previously claimed if the amendment is entered, subject to reconsideration and review as provided in §§ 1.143 and 1.144*

Form Paragraph 8.04 reads as follows:

*Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim [3] withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.*

Applicants submit that the constructive election was improper under MPEP 821.03 since Claim 7 was an original Claim filed through the PCT. Claim 7 was amended in a preliminary amendment at the time of U.S. filing (June 9, 2006) to eliminate multiple Claim dependencies and Claim 8 was added at the same time. Accordingly, both Claims 7 and 8 were originally filed, and certainly filed before the first Office Action on the merits.

Claims 7 and 8 were first filed as “Use” Claims, which is in the European style. (This Application, in part, claims priority to an European Application). Claims 7 and 8 were rejected under 35 U.S.C 101 in the Office Action dated Nov 25, 2008, for being an improper definition of a process since no process steps were recited, and for being indefinite under 35 U.S.C. 112 for use as an oxidant catalyst in a FCC process also without reciting any process steps.

Thus, the Office Action constructively acknowledges that Claims 7 and 8 were directed to a process, yet failed to issue any restriction requirement. For example, the Office Action could have issued a preliminary restriction requirement, if the Applicant decided to amend the "process" Claims to conform to U.S. practice. Since process Claims 7 and 8 were not added after the first Office Action, they do not fall within MPEP 821.03. Is it true that they were amended after the first Office Action, but merely to conform to U.S. practice, which did not change the fact that they were directed to a process. Thus, the construction election is improper and should be reconsidered and withdrawn, and a proper restriction Office Action be issued.

Applicants respectfully submit that the Examiner's reliance on 37 CFR 1.142(b) is also misplaced. In fact, Applicants believe that Rule 142(b) supports Applicants position by reciting that a restriction requirement be issued if the Examiner believes there are more than one independent and distinct inventions and allow the Applicant to elect an invention. As described above, since the Office Action of November 25, 2008 constructively acknowledges that Claims 7 and 8 were processes, a restriction requirement should have been issued to allow the Applicants to choose which invention they wished to prosecute. Thus, Applicant respectfully request the construction election be reconsidered and withdrawn to allow the Applicant to elect which invention to prosecute.

## **II. Obviousness under 35 U.S.C. 103(a)**

### **A. Rejection of Claims 1 - 3 under 35 U.S.C. 103(a) as being obvious over United States Patent Number 4,975,406, Frestad, et al ("*Frestad*").**

#### EXAMINER'S POSITION

The Examiner takes the position that each and every range of each individual component of the composition taught by *Frestad* overlap with the corresponding weight percentage range of each individual component of instant Claims 1 and 3.

The Examiner also states that with regards to Claim 2, that since there are only 6 alkaline earth metal oxides to choose from, it would have been obvious to select magnesium oxide because of the limited number of choices one has.

#### APPLICANT'S POSITION

Applicants respectfully disagree with the Examiner, and Applicants take the position that the present invention is not obvious in light of the teachings of *Frestad*. Applicants respectfully

submit that the Examiner's citation of Column 3, Lines 56 - 68 needs to be reconsidered and carefully reviewed. *Frestad* refers to a layered catalyst having a monolithic carrier body having a layer deposited thereon, see Column 1, Line 23 through Column 2, Line 8, and Column 3, Lines 56 - 68 discusses in great detail the composition of each catalyst layer as (a), (b), and (c). Thus, each of (a), (b) and (c) relates to a distinct layer on a monolithic carrier, and the weight percents in each layer are based on the coating layer, not on the catalyst as a whole. This is reinforced by the discussion in column 4, Lines 20 - 24, wherein it states that the amount of metal oxide promoter is "calculated on the weight of the catalytical coating"; in Column 4, Lines 1 - 5 wherein it states that the amount of noble metal is based on the weight of the entire coating; and Column 3, Lines 55 - 57 wherein it states that the amounts to be discussed refer to the layers of the catalyst. The Claims also provide clear guidance that the amounts of metals are based on the total weight of the coating layer, not the catalyst. For example, Claim 1 states that the catalyst comprises at least 2 washcoat layers, and Claim 2 states that each washcoat layer contains a certain amount of metals.

Fortunately, *Frestad* also provides direction as to the amount of coating provided on a carrier body so that one may reasonably deduce the amount of metals based on the total catalyst composition. In Column 2, Lines 1 - 6, the inventors of *Frestad* clearly state that a typical catalyst will contain about 20wt.% of such a coating, and this section is important because it concludes the definition of carrier body as used throughout *Frestad*. Thus, since the coatings of *Frestad* only represent 20wt.% of the total catalyst composition, then the metals amounts cited at Column 3, Lines 56 - 68 must be multiplied by this 20% to provide a reasonable estimate of the amount of metals present in the total catalyst. Thus, the amount of  $\text{Al}_2\text{O}_3$  present in the total catalyst is at least 10wt.%, the amount of alkaline earth metal oxides is 0.2 to 2wt.%, and the amount of rare earth metal oxide is 0.2 to 10wt.%, based on the total weight of the composition.

The ranges of metals currently claimed are based on the total weight of the oxidic catalyst composition, as indicated in the Claims. Thus, when one compares the invention presently claimed to the amount of metals present in the invention of *Frestad*, based on the total composition instead of simply the coating, one can clearly see that there is no overlap with regards to the amount of rare earth metal or divalent metal. Thus, Applicants take the position that the present invention is not obvious in light of *Frestad*.

With regards to Claim 2, Applicants first note that Claim 2 is a dependent Claim and includes, by definition, all of the Claims from which it depends, namely novel independent Claim

1. Thus, for the reasons noted above in relation to Claim 1, Claim 2 is also not obvious in light of *Frestad*.

**B. Rejection of Claims 1 - 3 and 6 under 35 U.S.C. 103(a) as being obvious over United States Patent Number 4,921,824, Chin, et al. ("*Chin*").**

EXAMINER'S POSITION

The Examiner takes the position that each and every range of each individual component of the composition taught by *Chin* overlap with the corresponding weight percentage range of each individual component of instant Claims 1 - 3.

The Examiner also states that with regards to Claim 6, *Chin* discloses that the catalyst particle can include a matrix as well as clay, etc., citing Column 4, Lines 3 - 16.

APPLICANT'S POSITION

Applicants respectfully disagree with the Examiner, and Applicants take the position that the present invention is not obvious in light of the teachings of *Chin*. Applicants first note that *Chin* clearly states at Column 3, Lines 45 - 46 that "the amount of lanthanum and, optionally, other rare earth oxides in the discrete particles *is not critical*" (emphasis added). Applicants thus respectfully point the Examiner to the Examples of the present invention and also paragraph [0056]. Applicants take the position that these sections of the present Application make clear that *Chin*'s conclusions are incorrect, and that the amount of rare earth metal oxide has an impact on the performance of the present invention. Applicants thus direct the Examiner's attention to MPEP 2144.05 III.

With regards to Claim 6, Applicants note that Claim 6 includes all of the limitations of Claim 1. Thus, for the reasons noted above, Claim 6 is also not obvious in light of *Chin*.

**C. Rejection of Claims 4 - 5 under 35 U.S.C. 103(a) as being obvious over United States Patent Number 4,921,824, Chin, et al. ("*Chin*") in view of European Patent Application EP 0554968 ("*Kim*").**

EXAMINER'S POSITION

The Examiner takes the position that *Chin* in combination with *Kim* teaches an invention similar to that claimed in Claims 5 and 6. In particular, the Examiner states that *Kim* discloses a process for forming a MgO-Lanthanum oxide-aluminum oxide catalyst involving forming a precipitate from a solution containing dissolved divalent, trivalent, and rare earth metal salts,

followed by calcinations of the precipitate, pointing to Figure II of *Kim*. The Examiner thus takes the position that it would have been obvious to produce the composition of *Chin* using the process of *Kim*.

#### APPLICANT'S POSITION

Applicants respectfully disagree with the Examiner, and Applicants take the position that the invention of Claims 5 and 6 are not obvious in light of the teachings of *Chin* in combination with *Kim*. Applicants note that the process of *Kim* could perhaps be used to produce the catalyst of *Chin*. However, this does not provide the requisite teaching to produce the presently claimed oxidic catalyst, as is required by the Claims. Among other reasons, the catalyst composition itself is not obvious, thus the amount of components used to produce such a catalyst is also not obvious. Further, with regards to Claim 5, neither *Chin* nor *Kim* describes or teaches the calcination of a physical mixture of a divalent, a trivalent, and a rare earth metal source, as is presently claimed.

**D. Rejection of Claims 1 - 6 under 35 U.S.C. 103(a) as being obvious over European Patent Application EP 0554968 ("*Kim*") in view of United States Patent Number 4,921,824, *Chin*, et al. ("*Chin*").**

#### EXAMINER'S POSITION

With regards to Claims 1 - 3, the Examiner takes the position that it would have been obvious to modify the composition of *Kim* such that the lanthanum oxide content of the composition is greater than 25%, preferably greater than 50% as taught by *Chin*. The Examiner continues that these ranges would thus overlap with the present ranges and cites MPEP 2144.05 as support for his prima facie case of obviousness.

With regards to Claims 4, 5, and 6, the Examiner basically repeats his rejections noted above.

#### APPLICANTS' POSITION

Applicants respectfully disagree with the Examiner, and Applicants take the position that the present invention is not obvious in light of the teachings of *Kim* in view of *Chin*.

As noted above, the composition of the present invention is inventive in light of the teachings of *Chin*. The teachings of *Kim* also do not provide support to obviate the present invention, as demonstrated by the present examples. Thus, the present invention is inventive in light of the teachings of *Kim* in combination with *Chin*. Applicants respectfully point the

Examiner to the Examples of the present invention and also paragraph [0056]. Applicants take the position that these sections of the present Application make clear that *Chin*'s conclusions are incorrect with regards to the amount of rare earth metal oxide, and *Kim* does not provide further support to sustain the Examiner's rejections.

With regards to Claim 6, Applicants note that Claim 6 includes all of the limitations of Claim 1. Thus, for the reasons noted above, Claim 6 is also not obvious in light of *Kim* in combination with *Chin*.

With regards to Claims 4 and 5, Applicants note that neither *Kim* nor *Chin* provide the requisite teaching to produce the presently claimed oxidic catalyst, as is required by the Claims. Among other reasons, the catalyst composition itself is not obvious, thus the amount of components used to produce such a catalyst is also not obvious. Further, with regards to Claim 5, neither *Chin* nor *Kim* describes or teaches the calcination of a physical mixture of a divalent, a trivalent, and a rare earth metal source, as is presently claimed.

Thus, for the reasons noted above, Claims 1 to 6 are also not obvious in light of the teachings of *Kim* in view of *Chin*.

**RELIEF REQUESTED**

Reversal of all of the rejections in this case, and a finding that the present Claims are allowable over the cited references are respectfully requested.

Respectfully submitted,

A handwritten signature in cursive script, reading "James A. Jubinsky", is written over a horizontal line.

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**CLAIMS APPENDIX**

- Claim 1        Oxidic catalyst composition comprising 5-60 wt.% of a divalent metal, 5-60 wt.% of a trivalent metal and 40-55 wt% of a rare earth metal, calculated as oxide and based on the total weight of the oxidic catalyst composition.
- Claim 2        An oxidic catalyst composition according to claim 1 wherein the divalent metal is Mg.
- Claim 3        An oxidic catalyst composition according to claim 1 wherein the trivalent metal is Al.
- Claim 4        Process for preparing an oxidic catalyst composition according to claim 1, which process involves forming a precipitate from a solution containing dissolved divalent, trivalent, and rare earth metal salts, followed by calcination of the precipitate obtained.
- Claim 5        Process for preparing an oxidic catalyst composition according to claim 1, which process involves the calcination of a physical mixture of a divalent, a trivalent, and a rare earth metal source.
- Claim 6        Catalyst particle comprising the oxidic catalyst composition according to claim 1, a matrix or filler material, and a molecular sieve.
- Claim 7        A FCC process utilizing an oxidic catalyst composition according to claim 1.
- Claim 8        A FCC process utilizing the catalyst particle according to claim 6.

**EVIDENCE APPENDIX**

None

**RELATED PROCEEDINGS APPENDIX**

None